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West American Scientist.

A popular monthly review and record for the Pacific Coast.

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EPIPHYLLUM.

(From the *Rural Californian*, xiv. 133.)

The Crab cactus is one of the most beautiful of garden plants, both for the clear green color of its tender, succulent stems and for the brilliancy of its flowers which are borne in great profusion during a large portion of the year. The genus Epiphyllum was established by Dr. Louis Pfeiffer, and contains but two or three species at most, by many botanists being in reality considered a monotypic genus. The stems are slender, succulent, leafless, and short-jointed; the joints somewhat flattened, two to three inches long and one or two inches broad. The flowers are produced from the points of these branches and not from their margin as in Phyllocactus.

The crab or lobster cacti, as they are popularly called, are natives of Brazil, where they are usually found growing upon the branches of trees as epiphytes—not parasitical—deriving their nourishment from the air. In cultivation it is a common practice to graft the Epiphyllum upon the stem of a Pereskia or some hardy stout growing cactus, by which an effect is produced not dissimilar to that of its natural condition, the slender jointed stems attaining a length of three or four feet and growing in a very pleasing, graceful manner.

This cactus may be easily propagated by cuttings or by grafting as above or from the seed. New and very beautiful forms are often obtained from seed and the number of varieties which have thus become known in cultivation is very great. Cuttings of two or more joints readily strike root at any season in pots of rather sandy, dry soil and placed in a warm situation.

Grafting on a Pereskia stock or on Cereus speciosissimus is the most popular method of treatment for increasing these plants, as by that means the drooping habit of the Epiphyllum is more gracefully and pleasingly displayed.

Pereskia aculeata is a strong, quick growing cactus with leaves like those of an orange tree, popularly known as the Barbadoes gooseberry. It is upon this plant that the Epiphyllum is usually grafted, and as it rapidly absorbs the moisture and nutriment from the soil it is advisable to fertilize the ground thoroughly. About one-fourth of the bulk of the soil in which it is planted has been recommended as a good proportion, and when supporting a large head of the Crab cactus the soil may be further enriched by a top dressing or the application of liquid manure from time to time, especially when the Epiphyllum is in bloom. After flowering the soil may be allowed to become partially dry until the plant resumes its natural growth after a few weeks of rest.

Epiphyllum truncatum Haworth.—This is the type of the genus and by some counted as the only species—the two following species being considered mere varieties of this by many botanists. It has been in cultivation in Europe for nearly a hundred years and

was introduced into England from Brazil early in the nineteenth century. The original form is said to have had dark crimson flowers with a white throat. One of the varieties early imported was of a "uniform rich crimson hue" and was figured in the *Botanical Magazine* in 1825. About 1840 a variety (violaceum) with a distinct tinge of violet was first known in England.

EPIPHYLLUM.

Among the numerous varieties which are now in cultivation, the result of natural variations in seedlings, perpetuated by cuttings or grafting are the following—known hybrids are marked with an asterisk (*):

*1—Majus; flowers large, of a deep rose color.

2—Bicolor; flowers white, margined with delicate rose.

*3—Coccineum; a very beautiful form, with brilliant deep scarlet flowers; very rich in coloring.

4—Bridgesii; dull violet, petals of a dark violet or purple; a prolific bloomer with richly colored flowers.

*5—Cruentum; dark-purplish red flowers.

6—Magnificum; large white flowers, with rose margined segments, tips of petals bright rose.

*7—Albolateritium; petals silky white, margined with brick red.

8—Amabile; white and faintly tinged with purple or crimson; an elegant form.

9—Aurantiacum; reddish-orange, large and brilliant.

*10—Purpureum; deep purple.

*11—Roseum; bright rose; very handsome, with streaks of deep red on the sepals.

12—Rubrotinctum; white and purplish-red flowers.

13—Ruckerianum; purplish-red, tinged with violet, with a rich violet center.

*14—Splendens; a fine form, with deep rose flowers.

15—Spectabile; white flowers, margined with purple.

16—Salmoneum; salmon-red flowers, tinged with purple.

17—Tricolor; flowers of a deep reddish-purple and white.

18—Violaceum; silvery-white flowers, margined with light purple. A large flowered form (grandiflorum) and a form with pure white flowers with a deep purple edge (superbum) are highly valued.

19—Guedeneyi; a remarkable form, perhaps a good species ' with pure white flowers three to four inches in diameter and exhaling a most delightful odor.'

20—Elegans; a superb red and purple colored flower, bright orange-red with a center of rich purple.

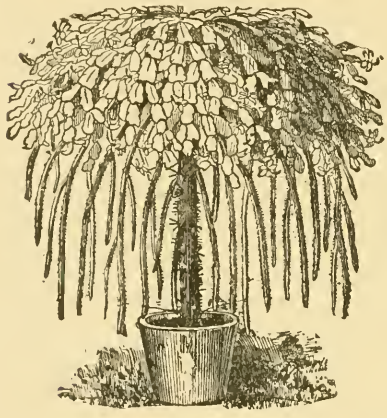
Some of the above forms may perhaps be worthy of specific rank, but as long as their origin and natural characteristics remain unknown they are best treated as varieties. These plants are all natives of the Organ mountains in Brazil, where they are found usually at an altitude under 4000 feet elevation, growing on trees in the vast forests of that region, not as parasites (as stated by some authors) but as Epiphytes—that is, deriving their nourishment from the moisture laden atmosphere and not from the host trees, where they are merely lodgers, not boarders.

Epiphyllum Russellianum Hooker.—This differs from the preceding species in more slender branches and larger flowers of a generally lighter color. The segments of the flowers are straight and narrow, not reflexed as in E. truncatum. In its native forests it seems to reach a higher elevation, having been found up in an alti-

tude of 6000 feet in the Organ mountains. It is a profuse bloomer, the flowers three or four inches long, of a clear rose-crimson. It was discovered by Mr. Gardner and named in honor of the Duke of Bedford to whose famous collection of cacti the first plants were sent about the year 1839.

Mr. Gardner's account of its discovery is interesting and is herewith copied from Lewis Castle's little book on Cactaceous Plants:

Through dense masses of bamboos with stems often more than half a foot thick and sixty to seventy feet high we had to cut our way up the Organ mountains till we came, after a toilsome day's journey, to a small waterfall, where we encamped for the night. On the trunks of the large trees growing near this spot I saw abundance of Epiphyllum truncatum beautifully in flower; and higher up the mountain next morning I found a lovely new species belonging to the same group as E. truncatum and much resembling it in many points, equally large, but with a more graceful mode of growth and lighter colored blossoms, the stamens, too, being uniformly pink.



EPIPHYLLUM TRUNCATUM.
Grafted on Cereus colubrinus.

This species blooms at a different period of the year than E. truncatum naturally, and by hybridizing varieties have been produced that remain much longer in flower than either parent.

The following distinct varieties of this have been in general favor in cultivation and are believed to have mostly originated by cross fertilization with E. truncatum or by other hybridization. Those indicated with an asterisk (*) are known hybrids:

*1— Rubrum; flowers of bright rose, double the size of the typical form.

*2—Cupreum; flowers smaller, of a 'coppery tinge, suffused with purple.'

*3—Superbum; 'the purple of E. Russellianum and the reddish tinge of E. truncatum are beautifully blended' in this form of hybrid.

*4—Snowii; is a very pretty hybrid, raised by Mr. Snow, an English gardener.

5—Gaertneri; flowers bright scarlet. This appears to be a hybrid between an Epiphyllum and a Phyllocactus, but its origin is unknown.

Epiphyllum Altensteinii Pfeiffer. — The third recognized species of the genus has longer and slender stems than E. trunca-

tum, with flowers of the same form, with reflexed segments of a pale pink or rose color, sometimes (?) 'tipped with purple.' It is comparatively rare in collections and consequently not so well known as the two preceding species, though equally attractive in appearance. It seems equally deserving of specific rank.

No collection of tropical plants however choice, but that would be enhanced in value by a representation of these elegant plants, which, when covered with charming pendant blossoms of brilliant tints or of delicate subdued shades, are scarcely surpassed by any greenhouse plants. For a window garden, conservatory or lawn, as an edging in beds, in small pots or hanging baskets or in more elaborate combinations the Epiphyllum is equally pleasing and graceful.

In England this plant is made useful in many curious combinations. Pereskias, in one instance recorded by Lewis Castle, were trained to a height of twelve or more feet against the wall and up the roof of a house, and an Epiphyllum grafted thereon at intervals of a foot. And these in time formed good heads, producing a magnificent effect, clothing the roof and walls of the house with the pendulous stems and a mass of richly tinted bloom. Pyramids several stories in height are produced by a similar method of grafting, and while some may prefer less artificial effects, yet they are well worthy of the florists' art, and are in fact but one way of imitating the work of nature. They have rapidly and deservedly advanced in the last few years from comparative obscurity into an increasing popularity among all classes. *C. R. Orcutt.*

ACORNS IN TREES.

(From the *Ornithologist and Oologist* xvi. 64.)

I have read that the California woodpecker sticks acorns in the trunks of trees in order that they may rot and so attract insects. I have had an opportunity to investigate this matter a little in the last few months, and as yet have not been able to find a single insect in these acorns. The acorns are very often cracked or split in two, and only half an acorn put in each hole. The object of the bird seems to be to let the nut become soft or start to decay, and then feed upon it. I have examined the gizzard of several of these woodpeckers and have found the acorn meat in them. All the holes made by this bird that I have seen were made in the trunks and larger branches of the live oak trees. They all seemed to have been used for years.

These woodpeckers have the same habit as the Lewis woodpecker, with which they associate, of perching on the top of the large sycamore and live oak trees, from which they dart into the air after insects and return to the same spot in the same manner as the fly-catchers do. *E. D. Kimball.*

DAVID STARR JORDAN.

DR. D. S. JORDAN.

Stanford University starts out with every prospect of becoming the great educational center of the far west, if not of the whole United States. It has by far the largest foundation endowment of any university in the world, and many old and noted institutions have received in all their history less than this university of the Golden State has at the start. Senator Stanford and wife, by deed of trust in 1877, conveyed to the use of the university their magnificent estates, comprising 83,000 acres of the finest wheat and fruit lands in the State, cash enough to complete all the buildings and enough more to make the total endowment at least $25,000,000. All this as a memorial to their dead son.

For president of the institution they have selected Dr. David Starr Jordan, almost a giant in body as in mind, and he is now organizing the faculty which is to be composed of the most eminent specialists to be found in the world. Dr. Jordan was born in Gainesville, N. Y., about forty years ago, graduated at an early age from Cornell university, and soon became noted for scientific investigations, especially in ichthyology. After experience as teacher and lecturer in various places, Dr. Jordan, in 1875, became professor of biology in Butler university, Indianapolis, and in 1879 was chosen president of the Indiana State University at Bloomington, a position he held until called to preside over the destinies of Stanford University. As an author he is well and favorably known. His numerous memoirs on fishes, and his 'Fishes of North America' in which every fish known to inhabit our waters is described, (with Dr. Gilbert's co-labors) are well known to every person interested in ichthyological matters. His 'Manual of the Vertebrates of North America' is a cyclopedic work and is found in every naturalist's library, where it is an every day helper.

The 'Leland Stanford, Jr., University' as its full title runs, is located at Palo Alto, about thirty miles from San Francisco, in the loveliest section of the Santa Clara valley. The buildings now completed and ready for occupancy, are among the most noble structures on the continent, and are a lasting monument to the loved son and a phlianthropist's generosity. *F. W. Goding.*

THROUGH SAN GORGONIO PASS.

(From *Pacific Rural Press* xli. 422.)

From San Bernardino, eastward to the sandy plains of the Colorado desert, there is a gradual rise until one reaches the summit at Beaumont, and from there it is one slow descent until one reaches the railway station at Salton, 250 feet below sea level. From San

Bernardino, the Southern Pacific railway traverses the San Mateo cañon, where the cultivated fields are too frequent to be very interesting to a botanist.

From Redlands, on the 9th of April, '91, I took a wood road which led off to the left, among the unsettled hills, where nature still rules supreme. The cañon and hillsides were covered with a thick growth of brush, Rhus ovata, shrub oaks and California lilacs being especially conspicuous. Castilleia foliolosa grew in clumps among the bushes, a foot or more high, and forming a brilliant display on the steep cañon sides. The floral bracts are of a bright orange—vermillion at the tips—each an inch or more long, forming a dense head, among which the shorter light greenish-yellow corollas of the flowers are entirely eclipsed.

In open places, Nemophila insignis, with its bright 'baby eyes,' grew in clusters of surpassing beauty, and lined the roadside until the eastern descent to the desert commenced. The flowers averaged nearly an inch in diameter, of a lovely cyanine blue, with a lighter or a white center. It covered the hillsides in places for acres in extent, appearing like a patch of the blue sky reflected upon the earth.

Growing on some of the steeper cañon sides were clusters of a species of Phlox, suffrutescent, two or three feet high, with a profusion of light rose-purple flowers, measuring one and one-fourth inches across. The hirsute stem and foliage rendered the plant more admirable at a distance than in the hand, but is one which would command admiration and attention anywhere, and one well worth further cultivation.

Among the annuals were Lupinus hirsutissimus, with hirsute stems and foliage, attaining a hight of three feet or more, with spikes of aster-purple flowers. In some of the open fields grew Sanicula bipinnatifida, with its dense, ball-like umbels of deep dahlia-purple flowers. This species of sanicle seems abundant in Southern California, especially on adobe lands, in grain fields, or scattered over the broad plains of the larger valleys.

Layia elegans, with a center of a cadmium-yellow color, the rays of a clear lemon yellow, tipped with white, grew abundantly on the western slope from Riverside to the summit of the pass, and for a ways down the eastern slope. At the summit another Layia without the white tips to the outer rays made its appearance, while a third species of a clear white throughout, extended from the sandy plains around Colton to the eastern or desert slope. The Layias are all elegant plants, bushy and erect in habit, with flowers two inches across and of a metallic brilliancy. Layia elegans has already become favorably known in cultivation and the other varieties must soon follow.

Orthocarpus purpurascens is a peculiarly beautiful and showy annual, a foot high, diffusely branching, erect in habit, producing

numerous dense and thick terminal oblong or cylindrical spikes of flowers. The yellowish corolla is tipped with bright lemon-yellow on the lower lobes, the upper part tipped with brilliant magenta, the whole encircled and crowned with brilliantly colored floral bracts of a rich magenta or crimson-purple.

Pœonia Brownii (P. Californica Nutt.) with its coarse 'brick-red' flowers was observed in bloom on these hills, and rattleweed (Astragalus) was also abundant. The delicate, lovely rose-purple flowers of Gilia dianthoides, growing in large patches by the roadside, commanded the admiration they invariably elicit. The popcorn flowers (Krynitzkia species), of a snowy whiteness, dotted the fields of alternate green and blue and gold.

At Beaumont, at the summit of the pass, single roots of the fragrant Viola pedunculata formed masses of foliage and flowers two feet and more across, six inches high, and bearing hundreds of the peach-scented blossoms. The color of this violet is beyond comparison, being a shade between lemon and cadmium yellow, of a metallic brilliancy, deep and clear, the backs of the petals veined or tinged a rich prune-purple. The profusion and luxuriance of this violet was here greater than I had previously noted in any other locality, and it seemed to reach its maximum growth in the cultivated fields. Other lovely annuals, noted in profusion at Beaumont, were the delicate sulphur-yellow cream cups (Platystemon Californicus), the popcorn flowers, bærias, wild hyacinth (Brodiæa capitata), Nemophila insignis, orthocarpus, violets, sanicle, Sidalcea malvœflora and last, but not least, Eschscholtzia Californica—the State floral emblem of California.

The Golden Eschscholtzia was here in the hight of its beauty. Single plants would measure one to two feet high, and over a yard across. I estimated that one of these plants would bear over 500 flowers, and each flower that I measured was fully four inches in diameter or over, some measuring five inches! This was evidently the typical form, as the large, succulent roots are perennial. The intensely brilliant coloring of the flowers, words cannot depict, and the artist has yet to correctly imitate and do justice to the coloring. It is most nearly described as of a deep orange color, and yet, a touch of crimson or scarlet exists in its composition, which makes itself felt when a large field of the flowers is seen at a distance.

Single fields of this magnificent flower, hundreds of acres in extent, were observed, which, at a distance of five or six miles, were of a uniform vermilion hue—a lake of fire amid an emerald sea. Such a sight, viewed from near and from afar, is one never to be erased from memory, but the true artistic beauty of the flower is lost beside the magnificence of such a vast display of brilliant, rich but, uniform coloring.

From Beaumont to the Whitewater river is a gradual descent and one continuous garden of flowers with now and then an alter-

nate field of grain. Phacelia tanacetifolia, with its heads of pale blue or rather lavender-colored flowers, lends color to the bushes that border the roadside. Chia (Salvia carduacea) grows in profusion in the fields, and is conspicuous for its large, lavender-colored flowers. Bærias and Œnotheras, popcorn flowers, Amsinckias, Lupins, and Gilias form alternate spots of orange, lemon-yellow, blue or purple amid the green of wild oats, alfilaria, clover and grasses. Spikes of brilliant flowers of a species of Delphinium, of a rich Berlin blue, rise among the clumps of bushes, over which also the delicate Megarrhiza vine with its clusters of white flowers trail in profusion.

Last but not least among this vast garden of flowers rise the Spanish bayonets on every side, like sentinels of war, on the western margin of desolate sand, rendering due tribute to spring in clusters of waxy-white, bell-shaped flowers, that lend their sweetness to the busy bee.

Beyond stretch the iron rails, where no flowers are, and where wind and sand reign supreme. *C. R. Orcutt.*

THE DOUGLAS FIR.

(From *Garden and Forest*, iv. 205.)

The Douglas Fir, from many points of view, is one of the most interesting trees of the American forest. Its monotypic character, its probably recent development in its distinct existing form, for the record of the ages has not divulged the secrets of its ancestry, the vastness of the region it occupies, its size and value to man, its beauty and capacity of adapting itself to new surroundings, all make the Douglas Fir an important inhabitant of the forests of western America—forests remarkable for the variety, size and value of the cone-bearing trees of which they are principally composed.

The Douglas Fir is distinguished from the true Firs or Abies by its petioled leaves, which, in falling, leave oval scars, by its pendulous cones with persistent scales, and by its seeds, which are not furnished with resin vesicles. It looks, moreover, in general appearance, more like a Hemlock than a Fir; it differs from the Hemlock, however, in the absence of the permanent, persistent bases of the fallen leaves which roughen the branchlets of all Hemlock trees, and in its much larger cones, which may be always recognized by the large acutely two-lobed and long-pointed bracts extended beyond the scales. It can be readily known, too, by the flat, distinctly stalked leaves which are somewhat two-ranked by a slight twist at their base.

Where climatic conditions favor the growth of large trees, as they do in the humid region of western Washington and Oregon, or

on the middle western slopes of the northern Sierra Nevada, the Douglas Fir often rises, in the course of five or six hundred years, to the height of three hundred feet, and forms a trunk ten or twelve feet in diameter above its enlarged base. The bark, which, like that of the Hemlocks, contains a considerable amount of tannin, is thick, deeply furrowed, and dark brown or red, or sometimes gray, in certain situations. Young trees, like young Spruces and Firs, are pyramidal in form, and retain their lower branches for a considerable time, sometimes even for two or three hundred years, when the individual finds sufficient space for their lateral growth, as it does occasionally when it has stood on the margin of the forest or on the steep slopes of some mountain cañon. Usually, however, the trees stand close together, especially in those parts of the country in which, under the favoring influences of a heavy rainfall, they grow to the largest size, and then their great trunks tower upward, for a hundred feet or more, without a branch. The leaves are linear and generally obtuse, an inch or an inch and a quarter long, dark green and very abundant, covering the long, slender, graceful branchlets. The flowers of the Douglas Fir are produced from the axils of the leaves of the previous year, the males surrounded by conspicuous bud-scales, the females much shorter than their narrow bracts. The cones, which are subcylindrical, ripen the first year, and vary in length from two to four inches. The seeds are triangular, convex, and red on the upper side, flat, and nearly white on the lower side, with short wings, broad at the base and acute at the apex.

The Douglas Fir extends from latitude fifty-five north, where it is found in the coast ranges and on the interior plateau of British Columbia, southward through all the regions west of the Cascade and the Sierra Nevada Mountains to Southern California. It is abundant in the Rocky Mountains from British Columbia far into Mexico, extending eastward to their eastern slopes in Montana, Wyoming, Colorado and Texas; it is common on the Wahsatch and Uintah Mountains in Utah, but is unknown on the ranges of the great basin and on the eastern slopes of the Sierra Nevada. It is most abundant and reaches its greatest size on the low glacial plain which surrounds the shores of Puget Sound. Here the Douglas Fir can be seen in all its majesty. It is the most common tree in a forest in which trees stand so close together that the traveler can barely push his way between their mighty trunks which support far above his head a canopy so dense that the rays of the sun never pierce it. Through these dark and awful shades the most thoughtless man cannot pass without experiencing that sense of solemnity and awe with which the human mind is impressed when confronted by Nature in her grandest manifestations.

The Douglas Fir grows almost as large on some of the California mountain-slopes as on the shores of Puget Sound, and it is one of the remarkable things about this tree that it flourishes at the sea-level

and on high mountains. In California it often grows to a great size at elevations varying from 6,000 to 8,000 feet above the sea, and sometimes ascends on the Rocky Mountains of Colorado to even higher altitudes, although it is always smaller and less valuable as a timber tree in the dry interior portions of the continent than in the moist coast region.

Other trees of the Pacific forest produce more valuable wood than the Douglas Fir—the Port Orford Cedar, the Sugar Pine and the Redwood. These trees are confined to a comparatively small region, however, and the Douglas Fir, in view of the great territory over which it has spread, must be considered the most important timber-tree of western America, and of no other tree is there now standing such a body of valuable and available timber. The wood of the Douglas Fir is hard, strong and durable; it may be recognized by the numerous spirally marked wood cells which distinguish it from the wood of allied conifers. The small cells which are developed in the wood of conifers at the end of the growing season are very numerous, and form broad bands which often occupy half the width of the layers of annual growth. These bands of small cells are dark colored and conspicuous, and become hard and flinty with exposure, making the wood of this tree difficult to work except when it is freshly cut. Some trees produce light red and some yellow wood, and individuals vary to a much greater degree than those of most other trees in the time required for their sap-wood to turn into heart-wood. The yellow wood is closer-grained and is considered much more valuable than the red wood. Lumbermen recognize these two varieties and pretend to be able to distinguish the trees which produce them, an assumption which still needs demonstration. The conditions which lead to the formation by the same species of such different wood are not well understood; in the case of the Douglas Fir they are probably due to soil and elevation, and, in part at least, to the age of the individual. The wood of the Douglas Fir is known in commerce as red fir, yellow fir and Oregon pine, the last name belonging, however, more properly to the wood of the Yellow Pine (Pinus ponderosa) of western America. It furnishes the principal product of the immense saw-mills situated on Puget Sound, and is manufactured, besides, wherever forests of this tree exist; it is used for all sorts of building purposes and for construction, railway ties and fuel.

The Douglas Fir was discovered late in the last century by Archibald Menzies, Vancouver's surgeon and naturalist, on his voyage of discovery; and a few years later Lewis and Clark found it in Montana during their transcontinental journey. David Douglas rediscovered it on the Columbia river in 1825 and introduced it into England; and it is the name of this bold and enterprising botanist which has become associated with this tree, although, unhappily, it cannot bear it in the language of science. No tree is more unfortunate

in its name; and there are few instances where the application of the rules which govern botanical nomenclature has produced a more unsatisfactory result. Lambert, who first named the tree, called it Pinus taxifolia, from the fancied resemblance of the leaves to those of the Yew-tree; then Lindley, disregarding Lambert's specific name, named it Abies Douglasii in honor of its rediscoverer. Carriere, recognizing the characters which separate this tree from the true Firs, coined for his genus a bastard word, half Greek and half Japanese, and called it Pseudotsuga, a perfectly improper name, as it has little in common with Tsuga, the Japanese name for the Hemlock. Carriere retained, however, Lindley's Douglassii, calling the tree Pseudotsuga Douglasii, but as Lambert's specific name is the oldest, the Douglas Fir must be known as Pseudotsuga taxifolia, a name bad in every way, and especially bad in its failure to recognize the name of Douglas, which, more than that of any other man, should be associated with it.

The Douglas Fir has proved itself in cultivation to be an ornamental tree of great value. The largest specimen in England is already more than 110 feet high, with a stout trunk furnished with branches from ground to tip, and showing no signs of diminishing vigor or beauty. The earliest attempts at cultivating the Douglas Fir in the eastern states were not successful; the trees raised from seed, gathered in the mild and humid climate of the northwest or in England, first planted here were unable, except in exceptional positions, to support our climate for any length of time. The late Dr. Parry, however, in 1862 discovered the Douglas Fir growing on the eastern slopes of the Rocky Mountains of Colorado in a climate distinguished by the severity of the cold of winter and by the drought of summer; he sent seed to the Botanic Garden at Cambridge, and the plants raised from this seed have proved hardy in the most trying situations in New England. Some of these trees are now more than twenty feet high, and although it is too soon to speak with anything like certainty in the matter, there is reason to hope that they will grow to a large size and retain their beauty for many years.

Much attention has been given to the Douglas Fir of late years as a subject for forest-planting in Europe, although the best authorities on such matters do not yet agree as to its value for this purpose. Large experimental forest-plantations are made every year, especially in some parts of Germany, where some forest-experts believe that the Douglas Fir is to rival and finally replace the Larch in Europe as a timber-tree. It has the merit of growing with surprising rapidity and of producing a large amount of timber in a comparatively short time. Few coniferous trees grow as rapidly as the Douglas Fir, and it is not uncommon to see self-sown seedlings in Washington and Oregon producing, when they stand very close together in good soil, annual shoots twelve feet long.

A remarkable form of the Douglas Fir, distinguished by its large

cones, occurs on the San Bernardino Mountains, in California. It has been considered a variety of the typical tree, and by some botanists a second species—a view supported by the fact that no intermediate forms connecting it with the type have been found, while in the region north and south of that occupied by this large fruited tree the typical Douglas Fir abounds.

ROSA MINUTIFOLIA.

Parry's wild Mexican rose was discovered by a little party of botanists in April, 1882, on the shores of Todos Santos or All Saints bay, Baja California, about forty miles south of San Diego, though it requires a full one hundred miles of travel to reach the spot by wagon road. The little town of Ensenada lies just south of where we first encountered this species and may now be reached by steamer in a few hours' time.

Dr. C. C. Parry, who was of the party, sent specimens of the little rose to his friend, Dr. George Engelmann, who described it in the Bulletin of the Torrey botanical club (vol. ix. p. 97) under the name, Rosa minutifolia. It has been figured in *Garden and Forest*, i. 102, accompanied with a few remarks by Prof. Sereno Watson, who says:

'Our wild roses have an ill reputation among botanists for the uncertainty which often attends the determination of their species. But there are some, fortunately, about which there can be no doubt, and we have here given the figure of one which carries its distinctive characteristics obtrusively to the front, and cannot be mistaken. Not only is there no other American rose like it, but it stands alone in the genus, forming M. Crepin's section, Minutifoliæ. Its compact habit, its very small and deeply toothed leaflets, and its small, solitary flowers almost sessile upon the short branchlets, together make it a very distinct species. * * * It is a much-branched, compact shrub, armed with numerous stout, straight spines, the small leaves often fascicled, and with numerous pink or white flowers along the branches. The globular base of the calyx is covered with short bristles. Evidently the flower in its wild state cannot be commended as well suited to the florist's needs, but from its habit of growth the plant may well prove a decided ornament to the lawn and garden in our more southern States, where it would doubtless be hardy.'

This rose forms low, dense thickets, two to four feet high, on the dry hillsides and mesas from the shores of Todos Santos bay to southward of San Quintin bay, but Mr. Brandegee did not observe it much south of the latter place in his journey through the Californian peninsula, though it probably extends further southward in the region of the coast. The flowers are scarcely an inch broad, but very bright and pretty, visibly enlivening the dull brown of the mesa lands on which this rose commonly grows.

Although growing on dry, often sterile soil, this rose does not readily adapt itself to even a slight change of environment. Of a thousand roots, carefully planted in soil of a similar character in San Diego, only a few survived and none thrived.

From the seed it is more easily grown, I believe, and may well repay the attention bestowed upon it. It blooms in April and May, and from then on, during the summer, remains in aestivation, rooted in the sun-baked earth and apparently as dry. With the earliest rains it is again clothed with its tiny green leaves, ready to pay its annual tribute to Flora. *C. R. Orcutt.*

THE GUADALUPE PALM.

(From *Vick's Magazine*, xiv. 168.)

Erythea edulis is one of the most beautiful of ornamental palms, a quick grower, with large fan-shaped leaves of a dark green. It is a native of the Isle of Guadalupe, off the coast of Lower California, where it is found in almost inaccessible cañons near the sea. The fruit is jet black when ripe, nearly round and about two inches in diameter. Clusters of the fruit often weigh over forty pounds apiece. The pulp is sweet and pleasant eating, and encloses a large and extremely hard seed about the size of a marble. The wild goats on the island eat the fruit with avidity.

Occasionally men surreptitiously visit the island to kill goats for their hides, and when they run out of provisions—as they sometimes do, since the island can only be approached in good weather—goat meat and palm fruit, or wild dates, as they are called, comprise their only food. The blue palm (Erythea armata), with its beautiful silvery or glaucous white foliage, is a near relative to the Guadalupe palm, and is found in the cañons bordering the desert on the mainland. *C. R. Orcutt.*

NOTES AND NEWS.

A fund of $3,000 has been raised for a monument to Audubon.

Col. N. S. Goss, state ornithologist, of Kansas, died March 10, 1891. His chief contribution to science, 'Birds of Kansas,' was issued but a few days before his death.

The death of Edward Andre, F. E. S., the well known Hymenopterist, is announced.

Prof. Philipe Poey, the eminent Cuban naturalist, and director of the Zoological Museum in Havana, has lately died.

LIBRARY CATALOGUE.

(Scientific books and periodicals may be ordered through our Book and Subscription Department.)

Recent accessions to the Library of the West American Museum of Nature and Art will be catalogued monthly.

4067. California State Mining Bureau: Tenth Annual Report of the State Mineralogist for the year ending December 1, 1890. Wm. Irelan, Jr., State Mineralogist. 983 pp., 8vo., illustrated, accompanied by geological maps of the Iowa Hill mining district, Placer county, of the Forest Hill Divide, of the Mother Lode region, etc.

4068. Third Biennial Report of the California State Board of Forestry for the years 1889–90, 1890. From J. G. Lemmon, State Botanist to the Board. With thirty artotype illustrations of evergreens. A valuable contribution on the forest trees of the State.

4069. Annual Report of the Board of Regents of the Smithsonian Institution for the year ending June 30, 1888. Report of the U. S. National Museum. 1890. 876 pp.

4070. *Entomological News* and Proceedings of the Entomological Section of the Academy of Natural Science of Philadelphia. 1890; 8vo., 168 pp. Annual subscription $1.00. Ten monthly numbers.

4071. *The American Geologist*, a monthly journal of geology and allied sciences. Vol. V, Minneapolis, Minn., 8vo., 398 pp. January to June, 1890.

4072. Same. Vol. VI, July to December, 1890. 406 pp. Yearly subscription, $3.50.

4073. The *American Naturalist*, a monthly journal devoted to the natural sciences in their widest sense. Vol. XXIV. 1890. 8vo., 1227 pp. $4.00 per year. Ferris Bros., publishers, Phila.

4074. Report upon United States Geographical Surveys west of the one hundredth meridian, in charge of Lieut. Geo. M. Wheeler. Vol. II.—Astronomy and Barometric Hypsometry. 1877. From J. H. Barbour.

4075. Same. Vol. VI.—Botany. From J. H. Barbour.

4076. Same. Vol. VII—Archæology. From J. H. Barbour.

4077. Same. Vol. IV.—Paleontology.

4078. History and work of the Warner observatory, Rochester, N. Y., 1883–1886. Vol. I. 8vo. 70 pp. 1887.

4079. Sur un Isaria, parasite du ver blanc, par A. Giard. Extrait des comptes rendus des seances de la Societe de Biologie (April 11, 1891). From the author.

4080. Sur la distribution geographique du Photodrilus phosphoreus Duges et la taxonomie des Lombriciens, par A. Giard. From the author.

4081. U. S. board on geographic names. Bulletin No. 2, issued May 25, 1891.

4082. Report of the secretary of agriculture, 1890.

4083. Eighth annual report of the board of control of the state agricultural experiment station at Amherst, Mass., 1890.

4084. Third annual report of the West Virginia agricultural experiment station, 1890. From Dr. C. F. Millspaugh.

4085. Special consular reports. Olive culture in the Alpes maritime, 1891.

4086. Transactions of the California state agricultural society during 1889.

4087. Annual report of the light-house board to the secretary of the treasury, for the year ending June 30, 1890.

4088. Special consular reports. Fruit culture in foreign countries. 1890. Part I.—The orange and the lemon. Part II.—The olive. Part III.—The fig. Part IV.—The vine. Part V.—Supplement. Pp. 399–937.

4089. A revision of the American species of Epilobium occurring north of Mexico. By William Trelease. From the second annual report of the Missouri Botanical Garden. Issued April 22, 1891.

4090. New species of fungi from various localities. By J. B. Ellis and B. M. Everhart. From Proc. Acad. Nat Sci. of Phil. 1891. From J. B. Ellis.

4091. New North American fungi. By J. B. Ellis and B. M. Everhart. From Proc. Acad. N. S. of Phil. 1890. From J. B. Ellis.

4092. Notes on the geology and scenery of the islands forming the southerly line of the Santa Barbara channel. By Dr. Lorenzo Gordin Yates, F. G. S. A. Extract from *Amer. Geologist*, Jan. 1890. From the author.

4093. Instances of the effects of musical sounds on animals. By Robert E. C. Stearns. Extract from *American Naturalist*, Jan. 1890 From the author.

4094. New species of Montana fungi. By J. B. Ellis and F. W. Anderson. Extract from *Bot. Gaz.* Feb. 1891. With plates vii. and x. From J. B. Ellis.

4095. A new Fomes from northern Montana. By F. W. Anderson. Extract l. c., Apr. 1891. With plate xii. From J. B. Ellis.

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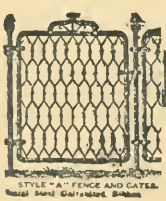

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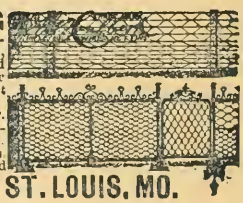

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